REMARKS

Initially, Applicant would like to thank the Examiner for acknowledging consideration of Applicant's claim for foreign priority, as well as receipt of certified copies of the documents upon which Applicant's claim for foreign priority is based. Applicant would also like to thank the Examiner for indicating consideration of each of the documents listed on the Form PTO-1449 submitted with the Information Disclosure Statement filed on August 17, 2006.

In the outstanding Official Action, Figures 1 and 2 of the Drawings were objected as lacking a legend such as ---Prior Art---. Claims 1 and 3-9 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 1 and 3-9 stand additionally rejected under 35 U.S.C. §102(e) as being anticipated by AKIYAMA (U.S. Patent App. Pub. 2004/0165156).

Upon entry of the present amendment, claims 1 and 3-9 will have been amended and new claims 10-15 will have been added. Independent claims 1, 8 and 9 will have been amended to recite, *inter alia*, a lens layer that includes a plurality of light-transmission films each including concentric circles, that is formed on and around said vertical lens layer, and that collects the incident light and outputs the incident light to said vertical lens layer through said light-transmission films. Support for these amendments may be found, for example, at paragraphs [0056], [0061] and [0065] of Applicant's specification. New claims 10-15 are directed to subject matter that is found, for example, at paragraphs [0042], [0056], [0058] and [0062] as well as in Figure 13. The amendments to claims 1 and 3-9 and the addition of new claims 10-15 should not be considered an indication of Applicant's acquiescence as to any of the outstanding objection or

rejections. Rather, Applicant has amended claim 1 and 3-9 and added new claims 11-15 to advance prosecution and to obtain early allowance of the present application.

Applicant traverses the objection to the Drawings. Upon entry of the present amendment, a Replacement Figure 1 and a Replacement Figure 2 will have been submitted. In this regard, each of the Replacement Figures will have been designated with the legend ---Prior Art---. Accordingly, reconsideration and withdrawal of the objection to the Drawings is respectfully requested.

Applicant traverses the 35 U.S.C. §112, second paragraph rejection of claims 1 and 3-9. In this regard, claim 1 will have been amended to recite a lens layer that includes a plurality of light-transmission films. The lens layer that includes a plurality of light-transmission films is distinct from the vertical lens layer, as recited in amended claim 1. Similar amendments will have been with respect to independent claims 8 and 9. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §112, second paragraph rejection of claims 1 and 3-9 is respectfully requested.

Applicant traverses the rejection of claims 1 and 3-9 under 35 U.S.C. §102(e) over AKIYAMA. An objective of the subject matter of the present application relates to a solid-state imaging device and includes enhancing photo-sensitivity. More particularly, the solid-state imaging device of the present application includes a light collecting element that is not significantly affected by variability in manufacturing and achieves high light collection efficiency (*see*, for example paragraph [0011] of Applicant' specification). As shown in Figure 7 of the present application, a lens layer 41 has a refractive index periodic structure of concentric circles which are comprised of high-refractive material layers 51 and low-refractive material layers 52.

According to the present application, a lens layer having a plurality of light-transmission films each including concentric circles allows a reduction in undesired height variations during manufacture. Accordingly, the lens layer has a lens shape that eliminates undesired variations during the manufacture, and which enables implementation of a solid-state imaging device having high light collection efficiency and high photo-sensitivity. Moreover, a high yield factor may be attained even if the solid-state imaging device is further decreased in size. Further, it is possible to set a focal length suitable to each wavelength of light corresponding to each pixel by changing the shape of each lens, such that light collection efficiency is increased. In addition, even if a pixel is positioned at the periphery of the solid-state imaging device and incident light is incident on the pixel at an angle, the lens including the plurality of light-transmission films is formed such that light collection efficiency is increased.

AKIYAMA is directed to an optical relay system which functions to focus light from an outgoing plane of an integrator rod onto an image situated in a predetermined illumination area. As shown in Figure 1 of AKIYAMA, a projector includes a relay optical system 400'. As shown in Figure 3A of AKIYAMA, the relay optical system 400' includes two lenses, a double-convex lens 422 and a double-concave lens 424. An arrangement of the two single lenses as shown in Figures 3A and 3B focuses light onto an image to provide illumination. AKIYAMA further discloses that the double-convex lens 422 is formed to reduce distortion aberration and that the double concave lens 424 is formed to cancel chromatic aberrations.

However, the projector described by AKIYAMA is relevant to display devices for projecting image or video on a display screen, and not a solid-state imaging device according to the present application. Moreover, the relay optical system 400' of AKIYAMA is merely a combination of two lenses, a double-convex lens and a double-concave lens. In contrast, claim 1

recites a lens layer that includes a plurality of light-transmission films each including concentric circles and that is formed on and around said vertical lens layer. AKIYAMA does not teach or suggest a lens layer that includes a plurality of light-transmission films each including concentric circles, let alone that the lens layer collects the incident light and outputs the incident light to said vertical lens layer through said light-transmission films. Furthermore, AKIYAMA does not teach or suggest that in each of said plurality of light-transmission films, a ratio of a total line-width to a periodic width varies based on a plurality of zones, each of which is obtained by dividing said light-transmission film by a predetermined periodic width in an in-plane direction, as recited in claim 1.

Still further, AKIYAMA does not teach or suggest realizing high light collection efficiency and high photo-sensitivity by adjusting a shape of lenses for each pixel. Moreover, AKIYAMA does not teach or suggest reducing undesired variations during manufacturing, when a solid-state imaging device is decreased in size, which are advantages of the present application. Accordingly, Applicant respectfully submits that claim 1 is allowable for AKIYAMA at least for each of the reasons set forth above.

In addition, independent claim 8 is allowable for reasons similar to those noted with respect to independent claim 1 in addition to reasons related to its own recitations.

Moreover, independent claim 9 is allowable for reasons similar to those noted with respect to independent claim 1 in addition to reasons related to its own recitations.

Applicant respectfully submits that each of dependent claims 2-7 are allowable at least because they depend, directly or indirectly, from independent claims 1, 8 and 9, respectively, which Applicant submit haves been shown to be allowable. Each of dependent claims 2-7 are also believed to recite further patentable subject matter. As such, allowance of the dependent

claims is deemed proper for at least the same reasons noted for the independent claims upon which they depend, in addition to reasons related to their own recitations.

Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 3-9 under 35 U.S.C. §102(e) over AKIYAMA is respectfully requested.

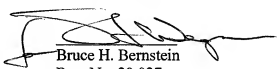
At least in view of the herein contained remarks, amendments and Replacement Figures, Applicant respectfully requests reconsideration and withdrawal of each of the outstanding objections and rejections, together with an indication of the allowability of all pending claims, in due course. Such action is respectfully requested and is believed to be appropriate and proper.

Should an extension of time be necessary to maintain the pendency of this application, including any extensions of time required to place the application in condition for allowance by an Examiner's Amendment, the Commissioner is hereby authorized to charge any additional fee to Deposit Account No. 19-0089.

Should the Examiner have any questions concerning this Response or the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully Submitted,

Yuuichi INABA



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